

distinct or easily separable forms and not members of a fluctuating series.

*O. Lamarckiana* of de Vries has 26-46 per cent. fertile seed and throws only a few mutants. Davis's *neo-Lamarckiana*, on the other hand, was highly fertile (87 per cent.), and gave a large number of "mutants," almost twice as many as plants resembling the parent. Davis believes that the reduction of the fertility of *neo-Lamarckiana* to that of *Lamarckiana* might readily result in the production of fewer mutants, thus paralleling the condition found among the true *Lamarckiana* offspring.

There is, however, no question but that Davis has produced a form which morphologically closely resembles de Vries's *Lamarckiana*.

H. M. BOAS

#### Mechanism of Tumor Growth in Crown Gall\*

In attempting to arrive at an explanation of the behavior of the host cells in the formation of crown gall, Smith comes to the conclusion that while the ultimate cause of cell proliferation is the organism *Bacterium tumefaciens*, the proximate cause must be the release within the cells of the host, by the bacterium, of one or more products of its metabolism.

On an artificial medium consisting of agar, water, calcium carbonate, grape sugar and peptone, *Bact. tumefaciens* produces chiefly ammonia and alcohol. With this fact as a clue Smith subjected plants to the action of various ammonia compounds, the chief methods being to inject the hollow stem of the castor bean plant, and young tomato fruits, with variously diluted solutions of the compounds and to expose the leaves of cauliflower plants to the fumes of the ammonia compounds, or to paint the solutions directly on the leaf.

In practically all cases striking proliferations occurred, the internal structure and outward appearance of which was identical with early stages of crown gall as produced by *Bact. tumefaciens*. Subsequent experiments demonstrated that this action is not restricted to ammonia compounds, but that it is characteristic

\* Smith, Erwin F. Mechanism of Tumor Growth in Crown gall. Journ. Agric. Research, 8, 165-186 + 62 pls. 1917;

of a wide range of materials—various acids, chloroform water, grape sugar, lime water, etc. “There can be no reasonable doubt . . . that any soluble substance whatsoever, except a killing, a plasmolyzing or an oxygen-absorbing substance, if continually liberated in excess locally in tissues would be competent to induce tumor formation.”

Smith concludes, therefore, that in the growth of crown gall the reaction is not to a specific chemical substance, but to changed conditions, perhaps disturbed osmotic relations in the host cells which can be produced by a large number of substances.

The paper is exceptionally well illustrated by numerous photographs.

HENRY F. A. MEIER

## NEWS ITEMS

Edward W. Berry, a former secretary of the club, has been appointed professor of paleontology at the Johns Hopkins University.

A committee which was appointed to report on the proposed exercises of the 50th anniversary of the Club has suggested that meetings be held on the afternoons of Thursday, Friday and Saturday, October 11–13th. The actual date of the semi-centennial is 26 Decemher, 1917, but the holiday season and the meeting of the American Association for the Advancement of Science, make that date unavailable. Further notice of this will be printed later.

Dr. John H. Shafer has recently returned from South America where he was collecting cacti for the New York Botanical Garden. His collections, numbering over 130 species, are described as unique.

The publication of the *Kew Bulletin* started in 1887 has been stopped because of the paper shortage in England.